

range, which extends westward to the southern and eastern shores of the Caspian Sea, and through the Central Asian Republics to Xinjiang and southern Mongolia.

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4. KANHA NATIONAL PARK BECOMES A NEW NIDUS FOR ELEPHANT SCHISTOSOMIASIS

(With one text-figure)

Schistosomiasis in elephants is a little known infection, due to little attention paid, or to low prevalence of the infection. Vogel and Minning (1940) described the first schistosome *Bivitellobilharzia loxodontae* from an African elephant (*Loxodonta africana*). Mudaliar and Ramanujachari (1945), described another species *Schistosoma nairi* (amended to *Bivitellobilharzia nairi* by Dutt and Srivastava, 1955), from an Asian elephant (*Elephas maximus*) from Coimbatore district, Tamil Nadu, which was redescribed by Sundaram *et al.* (1972). Rao and Hiregaudar (1953), reported the occurrence of *B. nairi* from six elephants of North Kanara division of the erstwhile Bombay state, whereas Kalapesi and Purohit (1957) described its histopathology. More recently, Islam (1994) mentioned its presence in the elephants in Kaziranga National Park, Assam. So far, *B. nairi* has been reported from the natural habitats (Kerala, Tamil Nadu and Assam) of the elephant. We are now reporting its presence in Kanha National Park, Madhya Pradesh, where only domesticated elephants remain.

Kanha National Park (22° 07' - 22° 27' N and 80° 26' - 80° 03' E) in Mandla district, Madhya Pradesh (M.P.), India, harbours 27 Asian elephants which are being used for wildlife tourism. Of these, one tusker was brought some 25 years ago from Coimbatore. Of the rest, 7 were

brought from Sonapur (Bihar, 18 years ago), 3 were caught from Sarguja (M.P., 10 years ago), while the rest were born and reared in the Park. The elephants frequent ponds and other water sources for bathing, and in summer they spray water on their body. This behaviour is favourable for picking up blood fluke infection.

Of the 27 elephants, faecal samples from 25 were examined by acid-ether method. The whole sediment, divided into three parts, was examined with and without a coverslip under 50x magnification. Camera Lucida drawings were made (400x) to study the morphology and measurements of the eggs (Fig. 1). Out of 27 elephants, 8 (32%) were found positive for eggs of *B. nairi* whose size varied from 122 x 77 to 205 x 90 µm, with a spine size ranging from 6.2 x 2.35 to 8.3 x 3.2 µm. The egg was oval, with a stout, abrupt spine present on one extremity (Fig. 1). The shape varied with their orientation, but was similar to that described by previous workers (Mudaliar and Ramanujachari 1945, Rao and Hiregaudar 1953, Sundaram *et al.* 1972). Moreover, the shape was distinctly different from those of *Orientobilharzia dattai*, *Schistosoma incognitum*, *S. nasale*, *S. spindale* and *S. indicum* — the blood flukes reported from Jabalpur area (Agrawal *et al.* 1991). However, there is a variation in the size of the eggs reported by us, and sizes reported by Mudaliar and

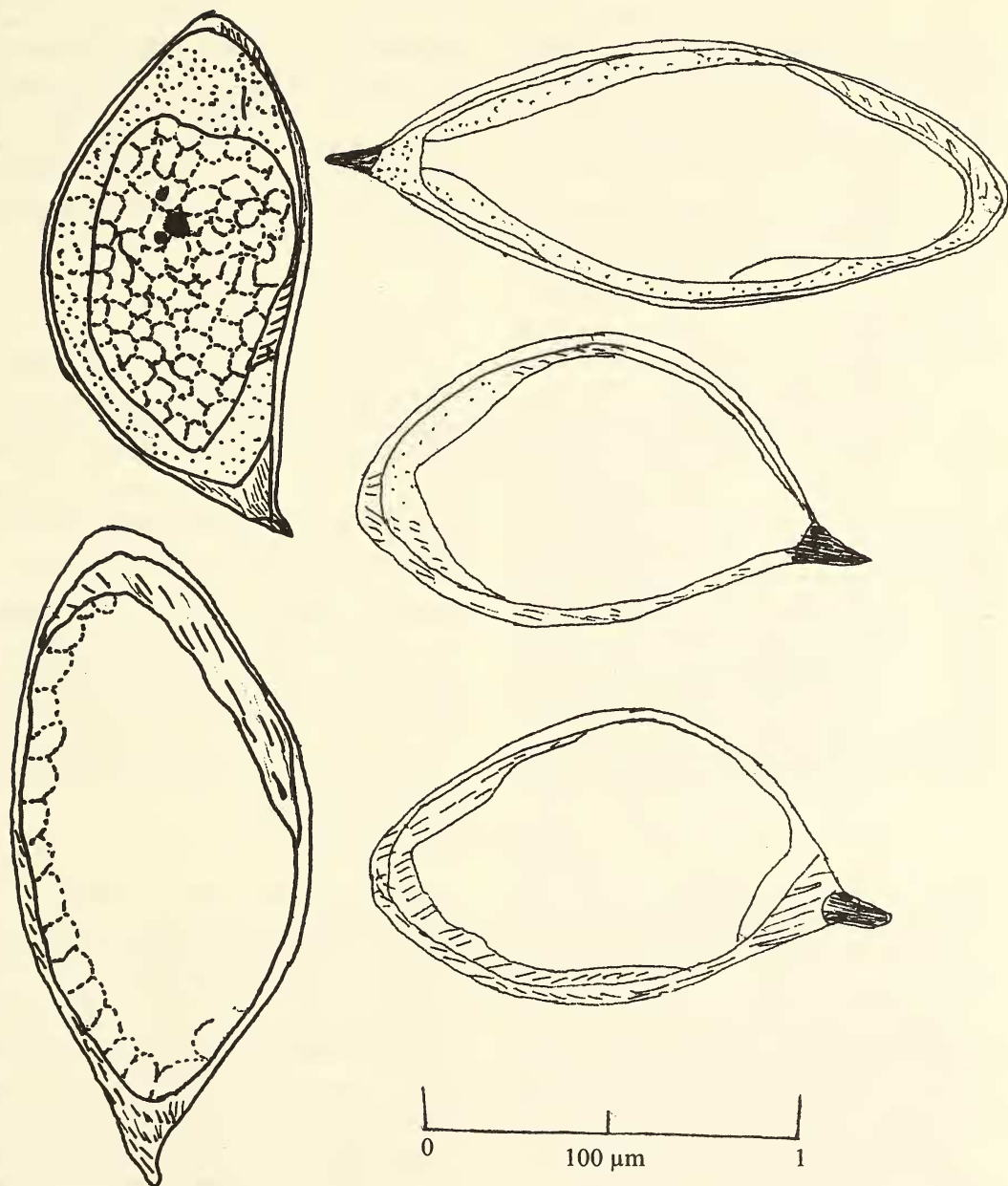


Fig. 1: Camera Lucida drawings of *Bivitellobilharzia nairi* eggs from elephants

Ramanujachari (1945), and Sundaram *et al.* (1972).

Of the eight infected elephants, 4 are juveniles, 3-5 years of age, which were born and reared in Kanha, confirming that these elephants have picked up *B. nairi* infection in the Park itself. Thus, Kanha now has a nidus of *B. nairi*. This is probably due to two factors. In the first event, the nidus was existent in Kanha, where the other animals maintained the infection, but it remained undetected. The elephants picked up the infection from Kanha and are identified as positive. However, so far, *B. nairi* has been reported exclusively from elephants throughout the country (though bloodflukes have a wide host range at the sexual stage). Thus, the parasite might be restricted to elephants. In this case, the elephant from Coimbatore may have introduced *B. nairi* and spread it in Kanha. The miracidia emerging from eggs of *B. nairi* successfully infected freshwater snails of Kanha National Park, thus making it a new nidus of the parasite. This reflects the capability of *B. nairi* to establish itself in a new geographical area. On a visit to Kanha, the second author (MCA) noted the freshwater snails *Indoplanorbis exustus*, *Lymnaea luteola*, *L. auricularia*, *Melanoides* and

Vivipara. So far, only *I. exustus* and *L. luteola* have been confirmed as the intermediate hosts for Indian schistosomes. In all likelihood, *B. nairi* is also utilizing at least one of these two snails. According to Chauhan *et al.* (1972), cercariae of *B. nairi* have an eye spot (ocellate), hence one must be careful while searching for the intermediate host of *B. nairi*, as ocellated cercariae are generally attributed to avian schistosomes.

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